

coding into the type field, a code selected from a first code, a second code, and a third code, respectively representing a beginning of a message, a continuation of a message, and an end of a message, and

controlling the reassembly of received slots at the destination in accordance with said source identifier codes, the first code, the second code, and the third code.

17. **(Twice Amended)** A method as claimed in claim 15 , further comprising

checking a destination address field associated with the message, for a match with an address associated with the destination, and

transmitting the destination address field in the message segment of the first slot of the message.
18. **(Amended)** A method as claimed in claim 15 , further comprising storing message segments associated with a single message in a buffer.
19. **(Amended)** A method as claimed in claim 18, wherein

providing the source identifier code to a comparator in response to detection of said first code at said destination, and

in response to detection of the second code associated with a subsequently received slot, providing the source identifier thereof to the comparator to check for a match, and

storing the message segment of the subsequently received slot in said buffer in response to detection of a match.
20. **(Amended)** A method as claimed in claim 19, further comprising outputting the reassembled slots in the buffer from the buffer as a reassembled message in response to detection of said third code.
21. **(Amended)** A method as claimed in claim 15, further comprising

coding, into the type field, a fourth code representing a single segment message, and
if said fourth code is detected in a slot received at the destination, storing the message
segment thereof in a single segment buffer.

22. **(Amended)** A method as claimed in claim 20, further comprising
providing multiple comparators and buffers at the destination so as to enable
simultaneous receipt of a plurality of messages, each having its own source identifier
code, and
storing the message segments of each message in respective buffers.
23. **(Amended)** Apparatus for transmitting variable length messages on a network from a
source to a destination in fixed length slots, said apparatus including;
a segmentation machine for segmenting the messages into fixed length slots, each of
which includes a header field and a message segment, said segmentation machine
including coding means
for providing a source identifier field in the header of each slot, said source
identifier field including a source identifier code that is uniquely associated
with the message to be transmitted, and
for providing a type field in the header field of each slot, and
for providing a code selected from a first code, a second code, and a third code
representing, respectively, a beginning of a message, a continuation of a
message and an end of a message; and
a reassembly machine located, in use, at the destination, said reassembly machine
including control means for controlling reassembly of the slots in accordance with
the source identifier codes of the slots, said control means being responsive to said
source identifier code, said first code, said second code, and said third code.

25. **(Twice Amended)** Apparatus as claimed in claim 23 wherein the message includes a destination address field and wherein the segmentation machine is arranged to transmit the destination address field in the message segment of the first slot of the message.
26. **(Amended)** A method of transmitting a variable-length message on a network from a source having a source address to a destination having a destination address, said method comprising:
- segmenting the variable-length message into a plurality of fixed length slots including a first slot, continuing slots, and a last slot, each of said fixed length slots including
 - a header field that includes a source identifier field, the source identifier field being substantially shorter than said destination address, and
 - a message segment;
 - providing a source identifier code in the source identifier field, said source identifier code being uniquely associated with the variable-length message;
 - providing a type field in the header of each slot,
 - coding, into the type field, a code selected from:
 - a first code representing a beginning of a message,
 - a second code representing a continuation of a message, and
 - a third code, representing an end of a message;
 - transmitting the slots on the network; and
 - controlling reassembly of slots at the destination in accordance with the source identifier code, first code, second code, and third code of slots received at the destination.

27. **(Amended)** Apparatus for transmitting variable length messages on a network from a source having a source address to a destination having a destination address in fixed length slots, said apparatus including:

a segmentation machine for segmenting each message into a plurality of fixed length slots including a first slot, continuing slots, and a last slot, each of said slots including

a header field that includes a source identifier field, the source identifier field being substantially shorter than said destination address,

and a message segment;

coding means for providing the source identifier field with a source identifier code that is uniquely associated with the message to be transmitted for providing a type field in the header field of each slot, and for providing a code selected from a first code, a second code, and a third code representing, respectively, a beginning of a message, a continuation of a message and an end of a message; and

a reassembly machine located, in use, at the destination, said reassembly machine including control means for controlling reassembly of slots in accordance with the source identifier codes, the first code, the second code, and the third code of the slots.

Please consider the following new claims 28-38.

28. A method for the connection-oriented transfer of variable-length messages in fixed-length slots from a source node, having a source address, to a destination node, having a destination address, the method comprising:

segmenting each message into a plurality of fixed-length slots including a first slot, continuing slots and a last slot, each of the slots including a header field and a message segment;

providing, in the header fields of each of the slots, a source identifier code uniquely associated with the message,

providing a type field in the header of each slot,

coding into the type field, a code selected from a first code, a second code, and a third code, respectively representing a beginning of a message, a continuation of a message, and an end of a message,

transmitting the slots from the source node; and

controlling reassembly of the message on the basis of information in the header field of slots received at the destination node.

29. The method as claimed in claim 28 further comprising storing, in a buffer at the destination node, message segments associated with a single message.

30. The method as claimed in claim 29, further comprising

providing, to a comparator, the source identifier code of the first slot received at the destination node;

providing, to the comparator, the source identifier code of each subsequently received slot; and

storing the message segment of the subsequently received slot in the buffer in response to an occurrence of a match between the source identifier code of the first slot and the source identifier code of the second slot.

31. The method as claimed in claim 30, further comprising outputting a reassembled message from the buffer in response to detection of the third code.
32. The method as claimed in claim 30, further comprising

providing multiple comparators and buffers at the destination node to enable
simultaneous receipt of a plurality of messages, each having its own source identifier
code, and

storing message segments from each message in a single buffer.
33. An apparatus for the connection-oriented transfer of variable-length messages in fixed-length slots from a source node, having a source address, to a destination node, having a destination address, the apparatus comprising:

a segmentation machine for segmenting each message into a plurality of fixed-length slots including a first slot, continuing slots, and a last slot, each of the fixed-length slots including a header field, and a message segment, the segmentation being located, in use, at the source node;

a coder for providing, in the header field of each slot,

a source identifier field for holding a source identifier code uniquely associated with the message to be transmitted, and

a type field, for holding a code selected from a first code, a second code, and a third code, respectively representing a beginning of a message, a continuation of a message, and an end of a message; and

a reassembly machine for controlling reassembly of slots into the message in accord with information in the header field, the reassembly machine being located, in use, at the destination node.

34. The apparatus as claimed in claim 33 wherein the reassembly machine further comprises a selector for checking the third code and for providing source identifier codes to the comparator for comparison with subsequently received source identifier codes.
35. The apparatus as claimed in claim 34, wherein the reassembly machine further comprises a plurality of comparators for enabling concurrent receipt of slots associated with different messages.
36. The apparatus as claimed in claim 35, further comprising means for providing source identifier codes of received slots to the plurality of comparators, thereby enabling the comparators to match slots having the same source identifier codes.
37. The apparatus as claimed in claim 36, further comprising:
 - a plurality of buffers for the message segments of the slots, and
 - a buffer selector circuit for selecting a particular buffer for receipt of all message segments of slots having the same source identifier code.
38. The apparatus as claimed in claim 34 wherein the controller is configured to output a reassembled message from the buffer in response to detection of a third code, the reassembled message being associated with the source identifier code of the slot containing the detected third code.